

## Piko BR80 en

### Backfitting with LS Decoder

Backfitting of a “Piko BR80” with a eMotion LS sounddecoder. (Pict.-1)  
The loco have 2 head lamps (LED’s) front and rear.  
Additionally a smoke unit will be assembled.



Pict.-1: Piko BR80 from startset

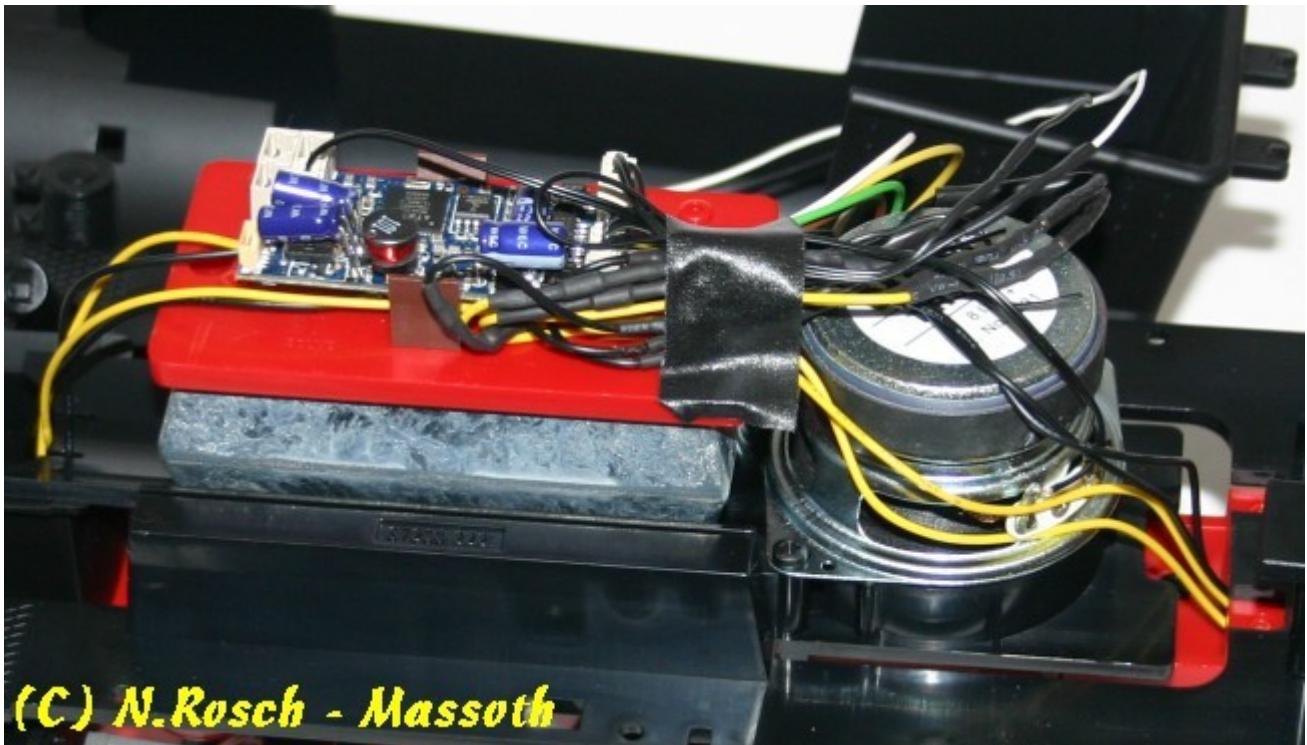
#### **Needed parts:**

- 1x 8211100 LS-sounddecoder steam loco (with sound update 8211510)
- 1x 8104010 PCB bracket (1 pcs from 10pcs set)
- 1x 8241060 Speaker Visaton FRS5
- 1x 8310201 Vaporizer 19V Standard

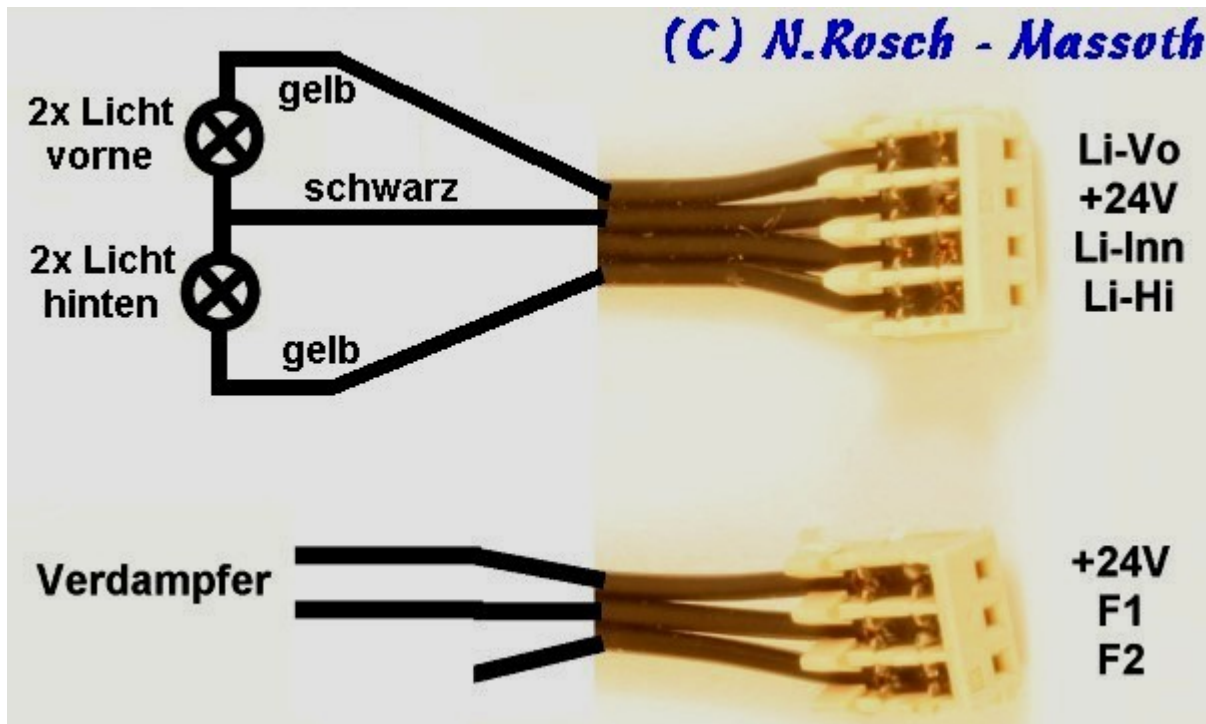
#### **Backfitting:**

- Demount loco: 2 screws under each water tank, 6 screws under the driver’s cabin and 2 at the outer firebox.
- Remove front buffer (2 inner screws), remove screw in the front under the boiler.
- Push latch through the screw hole and tilt the boiler to front top.
- Mount PCB bracket on the weight
- Mount speaker with 2 tapping screws. (Pict.-2)
- Snap the decoder in the bracket and plug the cable in the gear (isolate connector, consider the order!)

- Cut the light cable so, that resistor + diodes keeps on cable.
- Solder the light cable on the 4-pol. light cable of the decoder (Pict.-3). Black = “+” , Yellow = “-”
- Put the vaporizer in the smokestack and solder it on the 3-pol. F1 cable of the LS (Pict.-3)
- Plug all Mini-connectors on the decoder.
- Before you assemble the complete loco you should check it.
- Assemble the loco in inverted order.



Pict.-2: Assembling of the sounddecoder + speaker



Pict.-3: Connection of illumination + pulsed smoke unit

#### Further notes:

- While the vaporizer is designed for 19V, you should decrease the voltage. Also the lamps are too bright for a steam loco. (CV50 = 16 and CV53 = 90)
- On this assembling the speaker has an acoustic short circuit. If the loudness is not enough, set a cap on the top. (e.g. from an old aerosol)
- If you backfitting some weight for better traction, you should better use a XLS-decoder with 3 Amps. The current draw raise up very fast over 2 Amps (normal 0,5 - 1,5 Amps).

The traction is enough for a switch engine (with one 5Kg wagon it will slip at 4% uphill grade).

#### Additional backfitting:

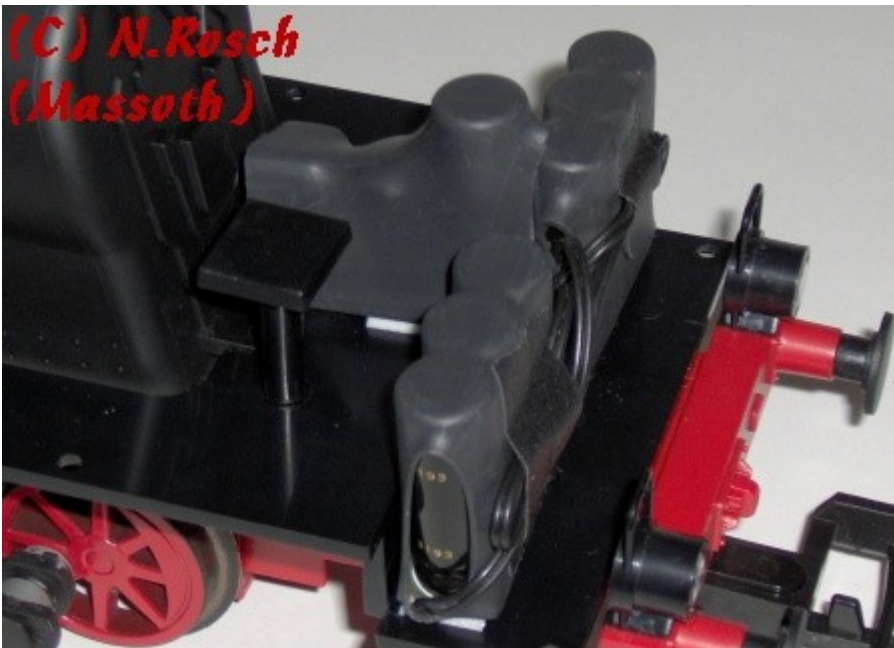
After detailed endurance tests with 2 locos on our test layout (inside + outside) we found, that the power input is not optimal.

We driving wheels blank, we cleaned the contact plates and axis (with alcohol + fiber glass brush) but the current will be mostly carried over the sliders.

We recommend to install a buffer.

- On locos without sound you only need the simple voltage buffer (8151001). On the sound loco you should better take a goldcapbuffer (8151501)
- The connection occurs on the lower side of the LS-decoder on the 3 soldering pads (GND = black, +24V = red, BC = white).
- On locos without sound you can assemble the buffer on speaker's place.

The goldcap buffer is not suggestive to mount in the case. We fixed them on the bottom of the driver's cab.



Pict.-4: Assembling the goldcap buffer

### **Backfitting with L Decoder**

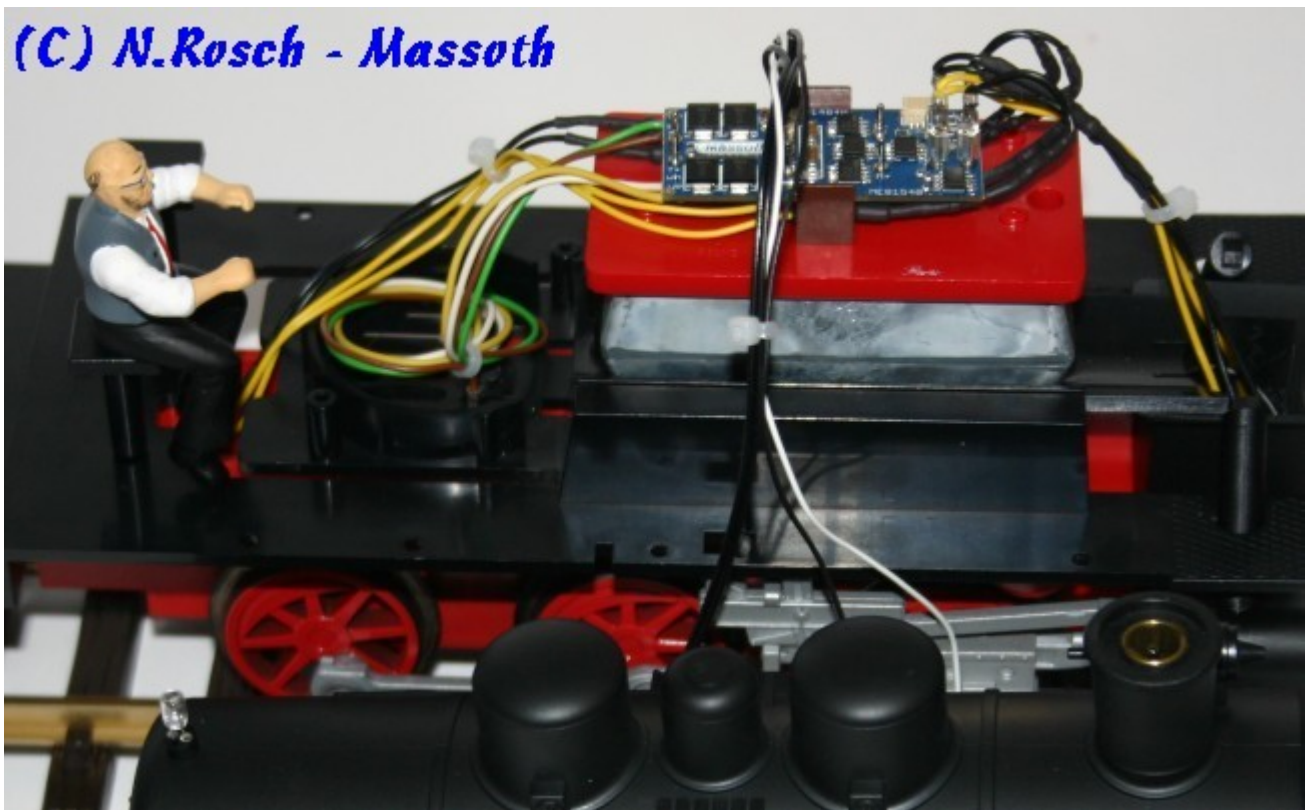
Alternative conversion proposal for a “Piko BR80” with an eMotion L decoder.  
In addition, an evaporator and interior lighting are installed.

#### **Needed parts:**

- 1x 8154001 eMotion L decoder
- 1x 8104010 Board and decoder holder (1 piece from set of 10)
- 1x 8310201 Evaporator 19V standard
- Incandescent lamp 19V from the handicraft box

#### **Backfitting:**

- Locomotive disassembly : See 1. article with pictures.
- Screw the board holder onto the weight
- Snap the decoder into the holder and connect the cable to the gear unit (isolate the plug, observe the sequence!)
- Cut off the light cable so that resistors + diodes remain attached to the cable.
- Connect the light cable to the 4 light pins of the decoder (Fig. 4) Black =”+”, yellow =”-“.
- Plug the smoke generator into the chimney and solder it to the 3-pin F1 cable of the LS (Picture-3)
- Drill a hole for interior lighting at the top back of the boiler.
- The interior lighting is also soldered to the cable of the smoke generator (evaporator switch-on control).
- Before the final assembly the locomotive should now be tested in advance
- Reassemble the locomotive completely in reverse order.



Picture-4: Conversion with eMotion-L

Here, too, the installation of a buffer to stabilize the power supply is recommended for use in garden railways.

The normal voltage buffer (8151001) is sufficient here.

The connection is made to “Dek+”, “Dek-” and “F5” of the L-decoder (CV118=31).

The buffer fits well where the speaker would otherwise be mounted.